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The Theosophical FORUM

APRIL 1905

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THE THEOSOPHICAL FORUM

VOL. 10 APRIL, 1905 No. 12

* * *

"Do not speak ill or judge ill of others. The putting of the best construction on another's acts is the way to practice love; to put the worst construction upon them is to practice hate. In the one case you are rising—in the other sinking.

"The evil qualities of others are no concern of yours; let them alone. It will do you harm to give your attention to those qualities, for thus you practice not love, but differentiation. But attend to their good qualities.

"Evil qualities are like a cloud of darkness, good qualities like a lamp. Were you in the dark with a few lamps about you, you would attend to the lamps—you would seek the light. Did you attend to the darkness, you would stumble and fall."

ANCIENT AND MODERN PHYSICS: AN ENQUIRY.

(Concluded.)

The author of "Ancient and Modern Physics" suggests that there are four kinds of substances connected with our visible universe. The first and coarsest he calls prakritic, taking the name from the Sanskrit word for Nature. The globe of the earth, including the atmosphere, represents this prakritic substance, as do also the globes of the other planets. The solid earth is only nucleus of this prakritic globe, and semi-gaseous planet like Jupiter and Saturn, some ten times greater in diameter than the earth, are probably examples of the earth's earlier states.

The etheric substance comes next. The author of "Ancient and Modern Physics" conceives the Sun to be the nucleus of an immense etheric globe, which has, as it were, an etheric atmosphere stretching far beyond the limits of the solar system as we understand it, that is, beyond the orbit of the planet Neptune.

Then comes pranic substance, with the star Alcyone in the Pleiades as the center of an immense pranic globe, as much finer than the etheric globe as the latter is finer than gross matter.

Finally, we have manasic substance, which is the last and highest realm of the outer universe; all higher planes are subjective and spiritual. The author of "Ancient and Modern Physics" conceives the visible universe to be a vast globe of manasic substance, infinitely more tenuous and subtle, infinitely more alive than the pranic globe already mentioned; and containing within it many pranic globes, just as the pranic globe of Alcyone contains within it many etheric sun-globes.

This is, I believe, a faithful account of that most interesting occult monograph, from one point of view. The author has much to say about forces, but he nowhere takes in hand to classify them according to his ideas of substance; and it seemed to me that to do this would be at once very interesting and very useful. In a preceding article, I tried to suggest that we have, in the molecular and atomic forces of which chemistry makes us aware, the group of forces belonging to prakritic substance, or gross matter, and I pointed out certain general characteristics of these forces, the most noteworthy of which is the fact that, practically speaking, they act

on the spot, through direct contact, and do not convey their influence over any appreciable extent of space. An acid will only act on a metal it is actually touching; chemical substances, such as oxygen and hydrogen, must be in immediate contact, if they are to unite; and so on. Action on the spot is, therefore, the characteristic of these atomic and molecular forces, which thus form a defined class by themselves.

It seemed to me that we have, as our next group of forces, the kind of vibratory wave-movement of which sound is the type. This wave-movement travels through gases, according to a fixed law, going more rapidly in lighter gases. Thus sound travels some eight hundred feet per second in heavy carbonic acid gas; it travels some ten or eleven hundred feet per second in air; and some four thousand feet per second in hydrogen, the lightest of the gases. As warm air is lighter than cold air, sounds travels more quickly in the former, and so with the other gases. Sound, or the vibration which causes sound, travels at different rates in different liquids and solids; more rapidly in liquids than in gases; more rapidly in solids than in liquids. But it is probable that five thousand feet per second would be a fair average for this class of vibration, taking all substances into the average. As sound travels through all substances, solid, liquid or gas, it would seem that its medium must be something common to all these substances; and it seems to me that this medium may well be the etheric substance of our friend the author of "Ancient and Modern Physics." The largest manifestations of this class of forces, we have in earthquakes and volcanic eruptions. The noise of volcanic outbursts has been heard for thousands of miles; that of the Sunda Straits volcano being heard as far as Madagascar in the one direction and Japan in the other. But the delicate mechanism of the seismograph shows that these vibrations go right round the globe, and may be recorded at distances of many thousand miles from their point of departure. They all approximate to the average velocity given above, say, some five thousand feet per second.

Next comes a great group of forces, of which light, heat, and magnetic or electric induction are types. These forces also stick within pretty close limits of velocity, but it is immensely greater than that of the forces already described. The light of the sun

takes only eight minutes to reach the earth, a distance of some ninety million miles. This is known, because we have a very delicate measuring instrument in the satellites of Jupiter, which travel swiftly around that big planet, and get themselves eclipsed at regular intervals of only a few hours. When we are on the same side of the sun as Jupiter, the eclipses occur on time. When we are on the opposite side of the sun, the eclipses are all sixteen minutes late. The reason is, that the light, which carries the story of the eclipse, has to travel one hundred and eighty million miles further; in other words, right across the earth's orbit, and a process of simple division shows us that this light travels at the rate of about 190,000 or 200,000 miles a second, more or less. We can check this result, by measuring the time light takes to travel between two distant points on the earth, say, two mountain peaks, as was shown by Fizeau; and the result is about the same. This, by the way, shows us that our measurements of interplanetary space are about right too.

Heat and light come to us in the same bunch of rays from the sun. Chemical action, as for instance photographing power, goes in the same rays. It is merely a question of differing numbers of wave-crests, and not really a difference in kind. The waves all travel forward through space at the same rate. It is probable that the Hertzian waves of the wireless telegraph form one end of the series; that the heat rays come next; then the light rays; then the actinic or chemical rays; and then the so-called X-rays. Magnetic induction travels at the same rate. There is one pretty illustration of this on record. It is known that violent changes in the sun, such as sun-spots upheavals, affect the magnetic condition of the earth, and throw our telegraphic instruments into fits. Once an astronomer saw a violent flash of light at a certain point on the sun, due, he thought, to a cometic body or meteor swarm rushing into the luminary. At the same instant, the delicate magnetic instrument at the Kew Observatory had mild convulsions. This showed that the light reached the astronomer's eye just at the moment the magnetic disturbance reached the magnetic indicator; both traveled at the same rate, taking some eight minutes to pass over the ninety million miles that separate us from the sun.

What a contrast with the sound group of waves. A mile a second as the average for the latter, as against 200,000 miles a

second for the light group. Here seems to be a definite difference of class, and I suggest that we have here the pranic group of forces. A learned friend objects to this. He says that the light group is the etheric group, and not the pranic. He also says that the sound group is the prakritic group, and not the etheric. This pushes the atomic and molecular forces over the border into the elemental kingdoms, where, indeed, they may very well belong. But then we are at a loss for our pranic group. It is up to my learned friend to define them.

If, as I have suggested, we have the pranic forces in our light-group, traveling on an average 200,000 miles a second, what about our fourth group, the manasic forces? Let us lead up to the matter this way. Light takes eight minutes to reach us from the sun. It takes three and a half years to reach us from the nearest fixed star, the brightest star in the constellation of the Centaur. No other star is within five years of us, so to speak; that is, the light from any other star, which enters our eyes to-night, left that star five years or more ago. The light from distant stars has been traveling for a thousand years or more, at the rate of 200,000 miles a second. In just the same way, the light from the earth will take a thousand years to reach such a star, and anyone on that star, with a strong enough telescope, could watch the coronation of Charlemagne to-day, though it took place more than a thousand years ago. The inhabitant of a star still further away could to-day watch the Buddha teaching in the Bamboo garden. The wave recording that event has only to-day reached these stars.

Now we know of a force which travels over these same distances in something less than a second. A second as against a thousand years. That is the force of gravitation. We cannot say positively that it takes no time at all; but we can say that, if it took the hundredth part of a second to travel over the space between the sun and the earth, the orbit of the latter would be different; the length of the year would be affected, and a whole train of other consequences would follow. So that gravitation travels practically as swiftly as thought, practically instantaneously. I use the phrase "as swiftly as thought" intentionally. I wish to suggest that gravitation is the type of the manasic forces, and that there may be other

forces linked with it, just as heat, magnetism, light, Hertzian waves, and X-rays are linked together.

So here we have, it seems to me, four classes of forces, which just fit the fourfold division of substances given in "Ancient and Modern Physics." First, the atomic forces, which act only where they are, in direct contact, and cannot be said to travel at all. These seem to me to be the forces of gross or prakritic substance.

Next, we have the group of forces, averaging, say, some five thousand feet per second, or say a mile a second when solids, liquids and gases are all taken into acount. This I am inclined to call the etheric group, taking etheric in the sense of the work under discussion.

Thirdly, we have the light group, traveling about 200,000 miles a second, beginning with the rays used in wireless telegraphy, and going on through heat, light, actinic rays, and so on up to the X-rays, which pass through solids as though they were transparent. These rays suggest clairvoyance, just as the wireless rays suggest telepathy. Who will try to solve this particular enigma?

Fourthly, the group of forces of which gravitation is the type, and which do not take seconds to cover the spaces which light requires years to cross. I believe they do literally go "as quick as thought," and that they are the manasic group. Any further information on this subject will be gratefully received by the present enquirer. It is evident that, in a sense, our scale is complete. We have at one end the forces which do not travel at all; then we have forces which travel a mile a second; then forces which travel 200,000 miles a second; then a force or forces which cover boundless spaces in no time at all, or which act instantaneously over infinite distances. There may be other divisions between; but there is no room for other forces at either end. We have exhausted that realm of nature, and our next step will carry us into the spiritual world.

MAN AND HIS RELATION TO THE UNIVERSE.

"If thou wouldst know the things invisible, open wide thine eyes upon the visible." TALMUD.

There is nothing supernatural and nothing above Law in the entire Universe, and there are no mysteries which man may not fathom and understand—nay, must fathom and understand—by the application of his inherent knowledge concerning the nature of this Law; in this way only, may he comprehend even the smallest detail of the properties of matter, of which the physical universe is composed, or of the forces back of their manifestation.

This Law is the Law of Harmony, and may be summed up as the absolute necessity for harmonious action between the "pairs of opposites"—the forces of attraction and repulsion—seen in one aspect or another throughout the entire Cosmos, and applicable alike to solar systems and to atoms and molecules. Disturb this harmony to even the slightest degree and reaction, equal to the disturbance, is at once brought about in an effort to restore it.

This fact is recognized as fundamental, not only in physics but in every department of human knowledge or experiment, whether physical or metaphysical. Do we try to develop any form of energy, as heat, electricity, chemical action &c? We may only do so by overcoming equilibrium or by substituting one form of unstable equilibrium for another of greater or less stability. Do we assume that this Law holds good only as to mass, great or small?

Investigators in the field of molecular physics have proved that the same law applies as well to the molecules making up the mass as to the mass itself; and it is found that even in the apparently most inert substance, the particles of which it is composed, even the atoms themselves, are in constant motion in the eternal endeavor to return to a state of absolute rest.

This incessant motion known as vibration, pervades all things and may be studied in its various modifications which we call the forces of Nature, and we at once see that what we thought to be stability and equilibrium is the fundamental harmonious vibration upon which depends the existence of the Universe as a whole and in every part. By the attractive force known as cohesion, atoms

become molecules and molecules become mass, while by the repulsive force density and variety are possible; chemical affinity determines the character of compounds and gravity supplies the bond by which all things are held in relation.

From this point, then, we are forced to the further conclusion that not only the forces belonging to and inherent in matter but that matter itself, are all equally modes of motion, but motion of what? If there is motion, there must be something that moves, and if matter exists by virtue of motion, there must be some source of motion and some channel by which it may be communicated, back of and beyond, although continuous with, the visibly material.

We see, handle and investigate the material forms, analyze structure and function and classify all according to the laws of resemblance or difference, but the real things—the forces underlying all form—are hidden from our physical eyes, made only to see physical and transitory things, by their very permanence—their immortality.

If we would trace sequence of effects we must search for the causes, and in the realm of causes, and it will help us not a whit to stop on the frontier and cry, "Ah! this is a mystery" and retire in awe from further seeking. Real knowledge is not thus acquired; it is not thus that mountains are climbed or strange seas explored.

Do we observe facts of constant occurrence in plant life? Patient investigation shows the same facts are equally true of all forms of organic life and the science of biology is born.

Do we dread the mysterious thunderbolt as an avenging missile from the hand of an angry God? A Franklin dares capture and study the fearful thing and a new servant is given for man's welfare.

Does man worship the supernatural and eternal fires at Baku? Knowledge of their cause confers upon the world the benefit of petroleum and petroleum gas.

Are the frightful monsters inhabiting an unknown sea to be feared and avoided? The daring of a Columbus makes possible the birth of a new nation.

Do we question the source of the energy locked up in coal and all other carbon bearing compounds? The twin sciences of chemistry and physic combine to solve the mystery and a new and broader

light is shed upon geology and in fact upon the entire field of human knowledge.

It is often said that knowledge is gained by experience, but experience is, after all, an interior action, and the value of knowledge so gained depends entirely upon the individual ability to assimulate the lesson; in other words, upon the ability of the individual to relate his experience to each other and to his own nature in future conduct.

On the other hand, while it may be possible that some facts have been discovered purely by accident, apparently, it will be found that in every such case, the discovery has been made possible only by previous training on the part of the observer.

Whether this statement be accepted or not, it may be stated as a broad, fundamental proposition, that the world's store of knowledge of today, is the result of patient investigation of the relation of cause to effect, with the physical properties of matter as the vehicle or medium through which experience and knowledge is gained; and the corollary to this, that increase of knowledge can come only through the enlarged and enlarging powers of perception of the real and permanent soul back of and superior to physical man. This, to my mind, embodies the entire conception of evolution reincarnation and karma, as a physical necessity.

Ultimate cause and ultimate effect can never be relegated to the purely material, but are inseparable from the metaphysical. Even the granite of the "everlasting hills" is gradually brought into solution, preparatory to the transference of its life energies into those of organic forms of life—first as vegetation, later in higher forms. The piece of hornblende of centuries ago, may be to-day supplying stability to the frame or acting as a carrier of phosphorus to the brain of the worlds greatest philosopher or philanthropist.

It would seem, certainly, to require no great wealth of illustration to prove that the real world is, after all, the world of causes. The strict materialist could have no physical science but for metaphysics and, if there is a metaphysical back of the physical, there must be metachemistry back of chemistry, and so on.

Now, metaphysics has been aptly, and I believe, correctly, defined as "the persistent attempt to think clearly"; but I would add to this, that clear thinking must be founded upon well established

and definite data or bases. We must fly our kite from this end of the string, but the information transmitted to us from the other end—the string being unbroken—is more accurate than if we should ascend with the kite. Accurate perception demands as a medium of transmission, a focus of exact dimensions, just as in the transference of a correct picture to the interior of a camera; the rays must converge to a point at the correct angle in order that the picture may be impressed clearly or at all.

Materialism calls for mathematical exactness—accurate weighings and measurings—and this is as it should be, but after all, mathematics, the so-called "only exact science," is found, in the last analysis, to be "metaphysics working through methods of precision." If we trace the rebirth of a plant from one generation to another, we find that we can foretell with mathematical accuracy, what will be the general character of future plants, the time of appearance of leaf, bud, flower and fruit—even the equality and merchantable percentage of the perfume—none of which properties we know with equal certainty, by microscopic and chemical tests, exist as such in the minute speck of matter which we recognize as the germ. If the environment is unfavorable and the growth imperfect, we must still take the result as an attempt, at least, to give outward expression to the inner possibilities.

The germ may be measured and weighed and so may all the physical properties belonging to the plant—and even their definite chemical composition be accurately determined—but the forces through which these results are brought about, elude our most patient search. We have no mathematical standards by which these forces may be measured, no chemical reactions by which they may be gauged, but we do not doubt their existence, for we have constantly before us their physical manifestations which can be expressed in terms of the most exact precision. If it is said that the germ "contains the promise and potency" not only of the future organic structure, but of all past and future forms from the beginning to the end of time, it would follow, if these properties reside in the germ itself, that in the constantly increasing complexity inseparable form a progressive evolution, there would be a corresponding increase in size of the germ cell.

Now this is notoriously not true, for the germ cells of the most

highly evolved beings are much smaller than are those belonging lower in the scale. Many facts and illustrations might easily be brought forward to prove that the germ cell is not the physical abode of the forces which constitute life, but simply the material basis for its manifestation and continuity, a focus or meeting point to which converge the lines of force generated in past existences, and from which radiate these same forces to new physical manifestation.

This, of course, implies belief in the immortality of these forces, and, if we are willing to believe that life, simply, is all there is to be so transmitted, we find ourselves at once in full accord with the inductions of modern science: For as Prof. Jordan says in his presidential address: "Each living being is a link in a continuous chain of life, going back in the past to the unknown beginnings of life. Into this chain of life, as far as we know, Death has never entered, because only in life has the ancestor the power of casting off the germ cells by which life is continued. Eeach individual is in a sense the guardian of the life-chain in which it forms a link. Each link is tested as to its fitness to the conditions external to itself in which it carries on its functions. Those creatures unadapted to the environment, whatever it may be, are destroyed, as well as those not adaptable; and this environment by which each is tested is the objective universe. It is not the world as man knows it. It is not the world as the creature may imagine it. It is the world as it is."

If we should substitute for the world life, Individuality, Ego or Divine Monad, using life or the vital principle simply as one of its vehicles for external or objective manifestation, this quotation might readily be taken as coming from a Theosophical instead of a scientific lecture. Certainly something must be added to make the quotation theosophical or even logical, for we cannot conceive of life, simply as life, being able to carry with it, through successive generations, such special characters and qualities as size, color, methods of thought or power of aspiration &c. The transformations of life are too many; what is one form of animal life to-day may be divided up to-morrow, among many other forms, or may be distributed widely throughout the vegetable kingdom. There could be no definite or progressive evolution, for if life is the one

permanent, indestructible thing, then it is life which evolves, which is palpably not true; life undergoes innumerable changes and, like other forces in nature, is indestructible, but in no instance can it be said to evolve, in the sense of progression. Now the dominant idea of modern science is evolution, the progressive change from the simple to the complex. This implies the fundamental unity of all life and of all matter, or as stated by Haeckel, "the essential unity of organic and inorganic Nature, the former having been evolved from the latter only at a relatively recent period."

This distinctly monistic conception ignores anything back of matter and life, through whose agency matter and life can come into being and whose progressive growth is the sole reason of being. This something back of all forms of physical manifestation, back of structure, back of the germ, back of the elements composing the germ and back of the life animating the whole, but focussing through each, is the re-incarnating Ego, the Individuality, which confers character upon personality, the Soul—in short, Consciousness.

If asked to define Consciousness in terms of human experience or mathematical exactness, we find ourselves obliged to admit that it is impossible, and we must resort to the methods employed in defining other forms of energy. We recognize them by their physical phenomena, and know they exist. We establish purely arbitrary units of measurement and weight, based wholly upon conditions that are not permanent, until at last we come to the inevitable conclusion that force can only be defined in terms of matter and matter in terms of force; and that our only sources of knowledge lie within ourselves.

And thus it is with Consciousness. We know, without defining our meaning in exact detail, that we are conscious of ourselves and conscious of our relations with others and our environment. We know with equal positiveness, that we are possessed of Consciousness which is free from such relations and which may be called abstract Consciousness.

If we accept evolution, we must, as before stated, accept the fundamental unity of all things. If evolution is true, there must be something which evolves, and whatever it is that evolves must be permanent throughout the entire evolutionary cycle. It is evi-

dent that matter, therefore, does not evolve, for in its innumerable manifestations and frequent changes of state, it can only be taken, as Spencer says, as the symbol of the real and permanent force acting through it.

Now, if we accept the teachings of the Ancient Wisdom, which happen to be identical with those of modern evolutionary philosophy, that the Universe is an emanation from the Absolute—the Unconditioned, the Unknowable—and that the end of all evolution is the return to the Absolute, we must conclude that whatever of Law governs the evolution, must govern in no less degree, all things evolved. This we shall find to be absolutely true and without exception, whether we accept evolution as being the unfolding of the ultimate homogeneous units inherent in the Absolute, as postulated by Spencer, or as being the progressive acquirement of the different aspects of Consciousness as taught by the Ancient Wisdom.

Man, although in the front rank in the scale of evolutionary development, is not above, but part of Nature, and must come under the same Law which governs all things. He can be no exception. Being at the head of the class, he must have passed through every phase of existence up to the present and must embody in his own Consciousness all the knowledge gained through all previous experiences. In his very complexity he is still one with the universe. In this complexity and harmony lies the key by which he may—nay must unlock the mysteries of all knowledge.

This is the riddle of the Sphinx; this is the Wisdom of the Ages.

By studying himself as a physical being, in his relation to his environment; by studying the cyclic activity of his life processes, the beginning, growth, life history and death of the cells which are the builders, preservers and destroyers of his body, all as the symbols merely, of the reality, man may know himself as the miniature of the universe, the Microcosm of the Macroscosm.

He will know that if the lesson of any existence is not well learned, and the experiences of any life are not added to "the harvest of the Soul," he must come back and back again and still again until he learns that as he sows, so he must reap; that causes set in operation on the physical plane, will surely have their effects and must be worked out on the physical plane; that degradation

must be expiated in degradation and that in the fulfilment of perfect Law, there is no room and no chance for injustice.

He will know that he is the maker of his own destiny under this Law; that he is admitted to no privileges or special gifts, except those won by himself—his higher Ego—through a long series of incarnations; that for him, having acquired intelligent Consciousness, there can be no vicarious atonement or suffering, that in the true sense, he does not reap what his parents have sown, nor sow that his children may reap.

He will know this by studying the life history and processes open to him throughout all Nature, of which he is part, and, by the Divine right of superior knowledge, King; and, being a part of the whole, his efforts to raise himself will necessarily result in a corresponding elevation of the whole.

MUSIC.

(Concluded.)

In the articles which preceded, under this title, we tried to show in a general way what music is, and how it may be used to reveal the hiden life and the hidden world. For this should ever be kept in mind, that music is invisible, and deals with the invisibles; that music is alive, and deals with powers that live. It was a wise old saying of the Chinese, that music is the language by which man communicates with the gods; it might be added that by music the gods communicate with us, and that through music the gods in us should communicate with each other.

In the present article, we have a more particular aim: to show why it is that music can produce the same effects as other arts, notably painting, the art of color and form; and we wish also to draw attention to two old books, which have wise things to say on this very subject. The reason why music can say the same things which are said by painting is this: that sound and color are both emanations of the same divine spirit; and that, therefore, there are certain defined relations of quality and significance between them. The precise nature of these relations is a matter somewhat abstruse. An attempt is made to solve the riddle in one of the two books of which we have spoken: namely, in the "Analogy of Sound and Color," written by Dr. John Denis Macdonald, of the British Navy, and published in London some thirty-six years ago. The Preface begins thus:

"It has long impressed the Author, that, if the undulatory theory were applicable to Light and Sound, in all their bearings, the seven colors of the rainbow and the seven notes in the musical scale might prove to be perfectly analogous in their relative properties and effects, either in single sequence or in combination. Thus, the law of interference, which so fully explains the nature of consonance and dissonance in music, if it be alike applicable to colors, will enable us to make practicable use of the principles of Musical Harmony in Painting, or the association of colors in matters of dress or decorations. It will be perceived however, that unless the particular number of vibrations producing the musical scale can be shewn to hold an exact relation to the ratio of vibrations calculated in the

intervals of the prismatic series, there would be no premiss from which an inference like the above could be drawn. To this desideratum special attention has been given in the first chapter, and it is presumed that the arguments there adduced, are sufficiently conclusive to warrant the further development of the subject in succeeding chapters.

"Painting as an Art, may be at least on a par with Music; but Music as a Science, is certainly in advance of the fine Arts, its most essential principles admitting mathematical expression. This last remark, however, has special reference to harmony, for we are still almost quite ignorant of the philosophy of the representative or allegorical power of music; and design and drawing in the arts, as regulated by precedent and principle, are much more intelligible than the essential nature of subject and theme in music.

"Coincidentally with the reception of Painting and Music, as sister arts, their votaries have intuitively felt the existence of a striking analogy between them, an analogy which is more particularly traceable in the phenomena of sound and color. Since the time of Newton various systems have been advanced in elucidation of this analogy, each assuming a colorific scale of its own, but, with the exception of the remarkable results obtained by Newton himself, with the prism and monochord, no purely scientific application of the principles of Musical Harmony to Painting appears to have been made. A reliable theory of harmonious coloring is therefore most desirable in the Arts, as there exists at present no rule to guide the Painter in his selection of colors, but a certain notion of a beau ideal, gained from the example of others, or originating in his own taste, fancy, or caprice."

The author goes on to say that the phenomena of Light and Sound mutually illustrate each other, and the more they are studied and compared, the more it becomes manifest that both are obedient to the same essential laws and governing principles, though the vibrations of the one may be represented as infinitely more minute and subtle than those of the other. A great interval, therefore, may be said to exist between the smallest sonorous and the largest colorific vibration. Moreover, the vibrations of the colorific scale are within very narrow limits, embracing but a single octave, whilst musical vibrations, extending over numerous octaves, take a much

wider range. Nevertheless, the internal constitution of the eight intervals of a diatonic scale, founded upon any note, will be seen, on close investigation to be represented in striking analogy by the prismatic series.

Our author then goes on to make the comparison between the tone scale and the color scale. He takes, on the one hand, the natural gamut, as determined by the monochord, a single taut string, which can be stopped at various parts, and thus made to give different notes, just as a violin string, stopped by the fingers of the player, gives various notes; and on the other, the numbers of light-vibrations corresponding to the various colors, according to the determinations of Sir John Herschell, from the data of Sir Isaac Newton. Herschell determined the number of light-vibrations corresponding to Red to be 477 followed by twelve cyphers, per second.

In his next table, the author arranges the notes and the colors in parallel series, the note C corresponding to Red; D corresponding to Orange; E corresponding to Yellow; F corresponding to Green; G corresponding to Blue; A corresponding to Indigo; B corresponding to Violet. At this point, we must reluctantly leave him, as, to make the rest of his book intelligible, we should have to use illustrations with musical notation and colors, which is impracticable. His study of the colors of the fundamental chords in harmony is admirable and most suggestive, as he prints the chords in musical notation, and actually colors the notes with the colors of the prism, and, if it were possible, we should like nothing better than to transfer the whole study to our pages.

The other book of which we have spoken, "An Essay on Musical Expressions," was published as long ago as 1775, also in London. Its author is Charles Avison. It also has a fine chapter on the analogies between Music and Painting. From this chapter, we can only quote a few paragraphs:

"The chief analogies or resemblances that I have observed between these two noble arts are as follows:

"First, they are both founded on geometry, and have proportion for their subject. And though the undulations of air, which are the immediate cause of sound, be of so subtle a nature, as to escape our examination; yet the vibration of musical strings or chords, from whence these undulations proceed, are as capable of mensura-

tion, as any of those visible objects about which painting is conversant.

"Secondly, as the excellence of a picture depends on three circumstances, design, coloring and expression; so in Music, the perfection of composition arises from melody, harmony and expression. Melody, or air, is the work of invention, and therefore the foundation of the other two, and directly analogous to design in painting. Harmony gives beauty and strength to the established melodies, in the same manner as coloring adds life to a just design. And, in both cases, the expression arises from a combination of the other two, and is more than a strong and proper application of them to the intended subject."

We must skip from Thirdly to Seventhly, and begin quoting again at:

"Lastly, the various styles in Painting—the grand—the terrible—the graceful—the tender—the passionate—the joyous—have all their respective analogies in music. And we may add, in consequence of this, that as the manner of handling differs in Painting, according as the subject varies; so, in Music, there are various instruments suited to the different kinds of musical compositions, and particularly adapted to, and expressive of, its several varieties. Thus, as the rough handling is proper for battles, sieges, and whatever is great or terrible, and, on the contrary, the softer handling, and more finished touches, are expressive of love, tenderness or beauty. . . ."

So we have a fourfold correspondence, between Emotions, Tones, Colors and Numbers; a correspondence not accidental or whimsical, but springing out of the very nature of things, and depending for validity on the underlying One. Thus by different lines do we come back to the single Being, whose essential nature is Everlastingness, Consciousness, Bliss.

RUDYARD KIPLING.

(Concluded.)

Watch how this energy actually works out, in any of his books. Take *The Day's Work*, for example. In the first story, we have all the stir and bustle of building a great bridge; then floods on the Ramgunga; then a mighty wave coming down the Ganges, with "hailstones and coals of fire" so to speak; the hero is swept "seven koss down stream" in a twinkling; and carried up again in a steam launch. And, to help the sense of movement, the artist has brought a locomotive all the way from America to the torrid Indian plains. But for that, the author is not responsible. In the next tale, a herd of horses roam over all the North American continent, or at any rate, tell about their roamings. And they are followed by The Ship that Found Herself, which seethes with energy from beginning to end, making the passage from Liverpool to New York, and feeling every mile of the way. Kipling gleefully ends:—"Next month we'll do it all over again." Then come the Chinn family, who travel a great many thousand miles between England and India, go forth to hunt tigers, and roam among aboriginal hills. The wicked steamer, who, or which, was always being re-painted, carries us to all the seven seas; Magellan and Drake are dead, or they would die of envy. William the Conqueror and his brother travel hundreds of miles by rail, from the Punjab to Madras, then hundreds of miles in bullock-carts and on horseback, or even on foot; then back again to the distant north. There is a tale of steam-engines, where Kipling "lays the miles over his shoulder as a man peels a shaving from a soft board." After that, a fast game of polo, full of the rattle and trample and patter of hoofs. More steamers strip the laurels from the great navigators' brows. A rich American crosses and recrosses the Atlantic, and gets mixed up with an express train. Then another railroad story, a rapid emetic, and the smashing of many lamps. Finally, the Brushwood Boy, like the Chinns, threads the Continent, slips over the blue Mediterranean, through the Canal, down the Red Sea, past Aden, across the Indian Ocean, up-country to his regiment, and then back again, to the house of his home.

If Kipling had only geared a pedometer to his pen, when he began to write, what a record he would have! We are spell-bound

with admiration at the splendid and tireless energy which goes into it all, and we are fascinated and enthralled by the swift kaleidoscope-whirling of his pictures. For sheer vigour of movement, as for intensity of sense-impression, he has no equal. He always writes with his coat off, and there is a horse saddled at the door, to take him galloping across country even before his ink is dry.

This quality of rapid movement, in a purely material and literal sense, is distributed through all his books. They teem with the trampling of elephants, the marching of troops, the rattle of regiments charging, and all things that stir and seethe. In the derived sense, the same quality or movement is equally strong. He nevr lingers over moods or tries to convey one definite and steady tone of feeling; it is change everywhere. All things flow. Something is perpetually going on. We are kept moving forward, with great rapidity. And it may be said that whatever movement the eye can see, or the ear hear, or the senses feel, Rudyard Kipling can paint so that we shall see it and hear it also. He never falters. His hand is firm throughout; and the faster the movement, or the more fugitive, the better he conveys it.

It is to be noted that he gets his very best effects of realism from pictures of moving objects. Take the incomparable vividness of Bagheera, the black panther: "inky black all over, but with the panther-markings showing up certain lights like the pattern of watered silk." One can see the glossy hide glinting, as the light ripples along it. Or take a touch like this: "He believes in throwing boots at fourth and fifth engineers when they wake him up at night with word that a bearing is red-hot, all because the lamp glare is reflected red from the twirling metal." Or later in the same story: "Oh, I forgot to say that she would lie down, an' fill her forward deck green, an' snore away into a twenty knot gale forty-five to the minute, three an' a half knots an hour, the engines runnin' sweet an' true as a bairn breathin'." One can only note the movement of all this, and its vividness and truth, with boundless admiration. And he keeps it up, page after page, story after story, book after book, with energy unabated, unflagging, and glorying in its surplus power.

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"The Theosophical Society in America by its delegates and members in Convention assembled, does hereby proclaim fraternal good will and kindly feeling toward all students of Theosophy and members of Theosophical Societies wherever and however situated. It further proclaims and avers its hearty sympathy and association with such persons and organizations in all theosophical matters except those of government and administration, and invites their correspondence and co-operation.

"To all men and women of whatever caste, creed, race, or religious belief, who aim at the fostering of peace, gentleness, and unselfish regard one for another, and the acquisition of such knowledge of men and nature as shall tend to the elevation and advancement of the human race, it sends most friendly greeting and freely proffers its services.

"It joins hands with all religions and religious bodies whose efforts are directed to the purification of men's thoughts and the bettering of their ways, and it avows its harmony therewith. To all scientific societies and individual searchers after wisdom upon whatever plane and by whatever righteous means pursued, it is and will be grateful for such discovery and unfoldment of Truth as shall serve to announce and confirm a *scientific basis for ethics.*

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